

separated by a few months or less. In particular, if the sunspot cycle imposed on terrestrial temperatures any such effect as is sometimes supposed, namely that higher sunspot numbers mean higher terrestrial temperatures, the effect upon any December and the immediately following January would be nearly the same because one month is so small a part of the sunspot cycle, which averages about 11 years.

In fact, to the extent that deviations of these monthly temperatures from their respective long-time means or trends were due to the effect of any cause which changes slowly through a cycle lasting roughly 10 years, (or longer up to at least a hundred years, thus including the double sunspot cycle), these deviations would be almost perfectly correlated. For example, the 1-month lag correlation for a quantity which follows a sine wave with an 11-year period is 0.99887. For a function which increases linearly through 11 years and then returns instantaneously to its original value, the 1-month lag correlation is 0.95523. This makes it plain that the failure to find a substantial

correlation of December with January reflecting some cyclic cause with a period of roughly 10 years is not appreciably due to the length of the interval (1 month) between data.

It follows, that at the 1 percent confidence level, *no* such cause accounted for as much as 5 percent of the variance of January mean temperatures at Greenwich during the 99 years 1765 to 1863 inclusive. Meteorologists who find themselves thinking seriously of sunspots as an important cause of terrestrial weather will be well advised to bear this correlation in mind, and to try to develop a hypothesis of sunspot influence sufficiently detailed to include little or no influence on some important weather elements at some locations, before they spend more effort on direct search for sunspot-weather relationships.

#### REFERENCE

1. H. W. Norton and G. W. Brier, "Persistence in London Temperatures," U. S. Weather Bureau *Research Paper No. 10*, 1944, 9 pp.

#### CORRECTION

Vol. 85, No. 1, p. 26, table 1: The temperature of  $-55^{\circ}$  F. listed for Boonville, N. Y. was not officially accepted.